



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/902,122	07/10/2001	Hardayal Singh Gill	SJO920010042US1	8000
7590	08/10/2005			
David W. Lynch Crawford & Maunu PLLC 1270 Northland Drive Suite 390 Mendota Heights, MN 55120			EXAMINER MAGEE, CHRISTOPHER R	
			ART UNIT 2653	PAPER NUMBER

DATE MAILED: 08/10/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/902,122

Applicant(s)

GILL, HARDAYAL SINGH

Examiner

Christopher R. Magee

Art Unit

2653

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11 May 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 8,10-13 and 15-17 is/are pending in the application.
- 4a) Of the above claim(s) 9 and 14 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 8,10-13 and 15-17 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 11 May 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

1. The reply filed 05/11/2005 was applied to the following effect: All relevant drawing objections and 35 USC § 112 rejections are withdrawn as being satisfied.

Response to Arguments

2. Applicant's arguments with respect to claims 8 and 13, filed on 5/11/2005, see page 9, which states "Watanabe fails to disclose, teach or suggest Applicant's tunnel valve sensor where 'the flux guide and the free layer are physically connected'" have been considered and are persuasive. Therefore, the 35 U.S.C. 102(e) rejections have been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Kobayashi et al. (hereinafter Kobayashi) (English machine translation of JP 10-334418) follows:

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 8, 10-13 and 15-17 are rejected under 35 U.S.C. 102(b) as being anticipated by Kobayashi et al. (hereinafter Kobayashi) (English machine translation of JP 10-334418)
 - Referring to claims 8 and 13, Kobayashi discloses a magnetic storage system comprising:
a magnetic recording medium [7; section 0001],

Art Unit: 2653

a tunnel valve sensor [section 0044; Fig. 3] disposed proximate the recording medium, the tunnel valve sensor comprising:

a tunnel valve [section 0044; Figs. 3 and] disposed at a first shield layer [12], the tunnel valve comprising a free layer [31] distal to the first shield layer [12];

a first insulation layer [17] formed over the first shield layer [12] and around the tunnel valve;

a flux guide [2] deposited over the first insulation layer [12], the flux guide being coupled to the tunnel valve at the free layer [31];

a second insulation layer [17] covering the flux guide;

a second shield layer [11] deposited over the second insulation, wherein the flux guide [2] and the free layer [31] are physically connected, and the flux guide is physically isolated from the first and second shield layers by the first insulation layer [col. 8, lines 38-44] to prevent current shunts therefrom [section 0044];

an actuator [not shown; described in sections 0001 to 0003] for moving the tunnel valve sensor across the magnetic recording disk so the tunnel valve sensor may access different regions of magnetically recorded data on the magnetic recording medium; and

a data channel coupled electrically to the tunnel valve sensor for detecting changes in resistance of the tunnel valve sensor caused by rotation of the magnetization axis of the free ferromagnetic layer relative to the fixed magnetization of the pinned layer in response to magnetic fields from the magnetically recorded data [not shown; described in sections 0001 to 0003].

Art Unit: 2653

- Referring to claims 10, 11, 15 and 16, Kobayashi discloses the flux guide [2] increases the amount of magnetic flux in the tunnel valve and the amount of magnetic flux increase in the tunnel valve enhances the output signal of the tunnel valve [sections 0013 and 0014].

- Regarding claims 12 and 17, Kobayashi teaches the tunnel valve [section 0044] further comprises:

- an antiferromagnetic (AFM) layer [34] of electrically insulating antiferromagnetic material;

- a pinned layer [33] of ferromagnetic material in contact with said AFM layer, said pinned layer making electrical contact with said first shield;

- a free layer [31] of ferromagnetic material; and

- a tunnel junction layer [32] of electrically insulating material disposed between said pinned and free layer [Figure 3].

Conclusion

4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure is annotated on PTO-892.

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christopher R. Magee whose telephone number is (571) 272-7592. The examiner can normally be reached on M-F, 8: 00 am-5: 30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, William Korzuch, can be reached on (571) 272-7589. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 2653

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Christopher R. Magee
Patent Examiner
Art Unit 2653

August 5, 2005
crm



GEORGE J. LETSCHER
PRIMARY EXAMINER